

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

1-74. (Canceled)

75. (Currently Amended) An automated sample processing system for processing at least one sample on a carrier according to a processing protocol, comprising:

a carrier retention device for retaining said at least one sample during said processing; and

an active temperature regulation element to which said at least one sample is responsive, wherein said active temperature regulation element regulates the temperature of said at least one sample at a set point and to within a tolerance specified by the protocol,

wherein the carrier ~~may be~~ is inserted or removed during the processing protocol without interrupting a processing of another sample.

76-89. (Canceled)

90. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated immunohistochemistry processing system.

91. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated in-situ hybridization processing system.

92. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated fluorescent in-situ hybridization processing system.

93. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated microarray processing system.

94. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated target retrieval processing system.

95. (Previously Presented) An automated sample processing system as described in claim 75 wherein said automated sample processing system comprises an automated stainer processing system.

96. (Previously Presented) An automated sample processing system as described in claim 95 wherein said active temperature regulation element to which said at least one sample is responsive comprises a temperature reduction element.

97. (Previously Presented) An automated sample processing system as described in claim 96 wherein said temperature reduction element comprises a controlled active temperature reduction element.

98. (Previously Presented) An automated sample processing system as described in claim 96 wherein said temperature reduction element maintains said sample at less than an ambient temperature.

99. (Previously Presented) An automated sample processing system as described in claim 95 wherein said active temperature regulation element to which said at least one sample is responsive comprises a temperature ramp up element.

100. (Previously Presented) An automated sample processing system as described in claim 95 wherein said active temperature regulation element to which said at least one sample is responsive comprises a temperature ramp down element.

101. (Previously Presented) An automated sample processing system as described in claim 95 wherein said active temperature regulation element to which said sample is responsive causes both a regulated temperature increase and a regulated temperature decrease of said sample.

102. (Currently Amended) An automated sample processing system for processing at least one sample on a carrier according to a processing protocol, comprising:

at least one container having a reagent therein for application to said at least one sample during said processing;

a carrier retention device for retaining said at least one sample during said processing;

a reagent temperature control element to which said reagent in said at least one container is responsive; and

a sample temperature control element to which said at least one sample is responsive, wherein said sample temperature control element regulates the temperature of said at least one sample at a set point and to within a tolerance specified by the protocol,

wherein the carrier ~~may be~~ is inserted or removed during the processing protocol without interrupting a processing of another sample.

103. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element comprises is configured to reduce a temperature of said reagent.

104. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element is configured to reduce a rate of temperature change of said reagent.

105. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element is configured to regulate temperature of a plurality of reagents, wherein each reagent of said plurality of reagents is in a respective container.

106. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element comprises an adaptive temperature regulation element.

107. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element is configured to optimize temperature of at least one reagent in said at least one container.

108. (Previously Presented) An automated sample processing system as described in claim 102 wherein said reagent temperature control element is configured to maintain temperature of at least one reagent in said at least one container at a thermal set point.

109. (Previously Presented) An automated sample processing system as described in claim 102 wherein said sample temperature control element is configured to increase temperature of said at least one sample during said processing.

110. (Previously Presented) An automated sample processing system as described in claim 102 wherein said sample temperature control element is configured to decrease temperature of said at least one sample during said processing.

111. (Previously Presented) An automated sample processing system as described in claim 102 wherein said sample temperature control element is configured to both increase and decrease temperature of said at least one sample during said processing.

112. (Previously Presented) An automated sample processing system as described in claim 102 wherein said sample temperature control element is configured to provide a controlled ramp up of temperature of said at least one sample during said processing.

113. (Previously Presented) An automated sample processing system as described in claim 102 wherein said sample temperature control element is configured to provide a controlled ramp down of temperature of said at least one sample during said processing.

114. (Previously Presented) An automated sample processing system as described in claim 75, further comprising:  
at least one drawer for housing the carrier.

115. (Previously Presented) An automated sample processing system as described in claim 102, further comprising:

at least one drawer for housing the carrier and at least one drawer for housing the container having the reagent.

116. (Previously Presented) An automated sample processing system as described in claim 102 wherein the at least one container having the reagent includes a rinse buffer.

117. (Previously Presented) An automated sample processing system as described in claim 116 wherein the rinse buffer is heated before being applied to the sample.

118. (Currently Amended) An automated sample processing system for processing at least one sample on a carrier according to a processing protocol, comprising:

at least one container having a reagent therein for application to said at least one sample during said processing;

a carrier retention device for retaining said at least one sample during said processing;

a reagent temperature control element to which said reagent in said at least one container is responsive; and

a sample temperature control element to which said at least one sample is responsive, wherein said sample temperature control element regulates the temperature of said at least one sample at a set point and to within a tolerance specified by the protocol,

wherein the carrier and the reagent ~~may be~~ is inserted or removed during the processing protocol without interrupting a processing of another sample.

119. (Previously Presented) An automated sample processing system as described in claim 118, further comprising:

at least one drawer for housing the carrier and at least one drawer for housing the container having the reagent.

120. (Previously Presented) An automated sample processing system as described in claim 118 wherein the at least one container having the reagent includes a rinse buffer.

121. (Previously Presented) An automated sample processing system as described in claim 120 wherein the rinse buffer is heated before being applied to the sample.